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### RESEARCH ARTICLE

#### EFFECTIVE DISASTER PREPAREDNESS STRATEGIES; A SUPPLY CHAIN PERSPECTIVE.

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#### Abstract

The enormous negative effects of disaster on lives and property, and the less preparedness to disasters by individuals, institutions and nations have led to the need to bring to light a deeper understanding on effective disaster preparedness strategies by assessing the effects of effective planning, resource management and co-ordination of stakeholders, so as to build a resilient proactive preventive, response and relief systems. A structural equation model was used to analyze various formative and reflective indicators in order to ascertain their effects on their respective constructs. The study revealed that disaster planning has a significant effect on resource management and the co-ordination of stakeholders. Again, with the exception of the co-ordination of stakeholders construct, the other two constructs (disaster planning and resource management) have a positive effect on effective disaster preparedness with significant effects on reduced potential occurrence, reduced impact of disasters and provision of better relief to victims of disasters.

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#### Introduction:-

In May 1970, the devastating earthquake in Peru buried thousands of buildings, destroyed local transportation and utility systems, and killed more than 18,000 people (Keefer, 2002). In 2007 the government of Ghana distributed US\$7.8m to enable a sustainable redevelopment in the Northern Region after a massive devastation by flood. Again in 2009, property lost from floods in the Southern part of Ghana in June and July alone, was worth US\$ 5,813,954.7 with a number of deaths recorded. Similar incidences occurred in 1999, 2001, 2010, 2015, etc (<https://www.graphic.com.gh/news/general-news/flood-disaster-profile-of-ghana.html>, accessed June 2015). The cost of disasters continue to be substantial in terms of environmental and social measures such as physical damage, human sufferings, death and other psychological traumas. This has led to the setting up of various institutions such as: Pacific Tsunami Warning Center; US National Tsunami Warning Center; Japan Meteorological Agency; Indian National Centre for Ocean Information Services; Meteorological, Climatological and Geophysical Agency of Indonesia; and the National Disaster Management Organization (NADMO) in Ghana.

Irrespective of the numerous disasters with their unquantifiable effects, government and other key institutions mandated to manage disasters in Ghana seem to have done little to control unsustainable practices such as: the destruction of forests and mangroves, sand mining at the coasts, improper planning of communities leading to an

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improper construction of houses in waterways, among others which pose a lot of threats to the nation, communities, lives and property. There is therefore an urgent need to well collaborate with all stakeholders to prepare for disasters through robust proactive preventive, response and relief measures.

Disaster preparedness refers to arrangements aimed at ensuring that a country or a community is aware of and prepared for any disaster and that should a disaster occur, all resources and services which are needed to cope with the situation are efficiently and timely mobilized and deployed. This objective is achievable only if there is an effective planning, resource management and co-ordination of stakeholders responsible for disaster management.

The occurrence of both natural and man-made disasters have enormous consequences on lives and property. Whilst prudent strategies can help in the reduction of the impact and potential occurrence of man-made disasters, sustainable environmental practices can help to reduce that of natural disasters. The belief that God controls the occurrence of disasters is very evident in Africa and Ghana in particular, and this accounts for the seemingly less preparedness to disaster by institutions and individuals in the region. According to the Pan African Health Organization (2009), to ensure an effective preparedness to disaster, there is the need for proactive planning and collaboration among disaster experts, communicators, or administrators to disaster management; training, teamwork and investment, etc. A strategic approach towards disaster preparation therefore requires a supply-chain-wide collaboration (Van Wassenhove, L. N., 2006).

This research therefore aims at assessing the effects of effective planning, resource management and co-ordination of stakeholders on effective disaster preparedness.

#### **Related Literature:-**

##### **Forms of Disasters:-**

Although disasters are so varied and defy easy classification (Smith,2004), disasters may be grouped under man-made and natural, however, certain unsustainable human activities such as the diversion of river bodies, mining, etc easily trigger such natural disasters. Natural disasters include: rain and wind storms, floods, earthquakes and landslides, and volcanic eruptions whilst man-made disasters may include: Acts of war and terrorism, fire outbreaks, explosions, liquid chemical spillages and collapse of buildings (Buchanan et. al., 1988).

Disaster may also be grouped under lithosphere disasters (landslide, subsidence, earthquake), atmospheric disasters (rain, lightning, temperature), hydrosphere disasters (flooding, coastal erosion), biologic disasters (forest fires and wildfire), and technological disasters (oil spills, transport accidents, and failures of constructions).

Irrespective of the category under which disasters may be grouped, Smith (2004), is of the view that disasters are events, concentrated in time and space, in which a community experiences severe danger and disruption of its essential functions, accompanied by widespread human, material or environmental losses, which often exceed the ability of the community to cope without external assistance. Disasters may be activated from seemingly unexpected occurrence of earthquakes, to a more predictable seasonal floods and periodic storms. Unfortunately unsustainable practices of governments, industries, firms and individuals contribute immensely to this unfortunate occurrence.

##### **Overview of Disaster Management:-**

Disaster management is a key factor that drives successful execution of relief efforts, and it begins with strategic process design (Tomasini and Van Wassenhove 2009). To mitigate the negative impacts of disaster, human preparedness is key to averting such a situation or reducing the level of impact by providing counter measures, infrastructures and strategic plans of relief operations in advance (Nikbakhsh&Farahani, 2011).

Disaster management is not an easy task at all as many factors such as chaotic post-disaster relief environment (e.g. public panic, missing transportation and communication infrastructure), control of large number of actors involved in the management process (donors, media, governments, military and other humanitarian organizations) and the lack of sufficient logistics to manage effective disaster response and relief (Tomasini&Wassenhove, 2009) may worsen its impact on the economy, society and the environment. It is imperative to ensure a supply-chain-wide strategy to effectively manage stakeholders, victims, relief items, distribution systems, etc. There is therefore the need to effectively prepare for disasters so that its risks may be reduced to the barest minimum.

Managing Disasters (Ghana's case):-

The National Mobilization Programme set up after the 1982–1983 crises of drought, bushfires, famine, and the deportation of 1.2 million Ghanaians from Nigeria served as the implementing agency of the Disaster Relief Committee. After Ghana had responded to the United Nations Declaration GAD 44/236 of 1989 declaring 1990 to 1999 as the International Decade for Natural Disaster Reduction (IDNDR), Ghana formed the National Disaster Management Organisation in 1996, backed by an act of Parliament (Act 517) to manage disasters and emergencies in the country.

The National Disaster Management Organization (NADMO) under the Ministry of the Interior was established with the responsibility to manage disasters and similar emergencies in the country. The mandate of the National Disaster Management Organisation includes all activities from preparedness to response and recovery; prevention of disasters; creation of awareness in disaster-prone communities and institutions on all hazard/disaster types; training and motivating communities especially volunteers to initiate actions to prevent and respond to disasters; bring relief to disaster victims; assist to reduce poverty in vulnerable and poor communities through social mobilisation for employment creation and income generation in order to build a disaster resilient Ghana (<https://www.mint.gov.gh/agencies/national-disaster-management-organization/>, accessed November 2017). Irrespective of all the above objectives to be met by NADMO, Ghanaians still desire to see when they will be fulfilled. Morden Ghana Online Report in October 2017 questioned whether Ghana is even prepared for disaster and cautions disaster management organizations to be up and doing in forecasting and preventing national disasters, rather than running after relief items to distribute to affected victims after disasters occur (<https://www.modernghana.com/news/811399/is-ghana-ready-for-another-natural-disaster.html>, accessed November 2017).

#### **Effective Disaster Management:- Planning:-**

A key step to an effective disaster preparedness is planning for disasters. Disaster Planning refers to proactive steps, procedures and actions to prevent, prepare for, respond to and recover property and victims of disaster on time to reduce further deteriorating effects. Disaster planning is a matter of basic security for individuals, firms, industries, communities, countries and the world at large. This is because no individual or region can be considered to be excluded or immune to the possibility of disasters.

Effective planning requires the establishment and resource of institutions responsible in the management of disasters. An establishment of an effective organizational structure helps in easy communication and response to disasters. A disaster recovery plan (DRP) is essential to document processes or sets of procedures for effective disaster recovery. Such plans, ordinarily documented in written form, specifies procedures an organization is to follow in the event of disasters. Hazards can often be mitigated or avoided altogether by a comprehensive, systematic, emergency-preparedness programs. Such programs provide a means for recognizing and preventing risks, and for responding effectively to emergencies. Planning for disasters will be more effective if social, political, and economic conditions of potentially affected communities and the country in general is well diagnosed, objectives for timely and priority actions for communication and information management are well defined, target audience are well identified, strategies are well determined, communication tools are well determined, programs or activities and time lines are well outlined, and adequate budget is well allocated under an effective leadership.

#### **Resource Management:-**

According to Van Wassenhove (2006), effective logistics management is the part of any disaster relief that determines a successful or failed disaster operation. According to him, it involves the processes and systems involved in mobilizing people, resources, skills and knowledge to help vulnerable people affected by disaster. Thomas and Kopczak (2005), indicate that humanitarian logistics activities include planning, implementing and control of an responsive, cost-effective flow and storage of goods and materials as well as related information, from the point of origin to the point of consumption for the purpose of alleviating the suffering of vulnerable people. Stock or inventory management which is key in logistics management therefore plays a crucial role in humanitarian relief operations (Christopher and Tatham, 2011).

Resources for disaster management are so diverse ranging from required technology and communication systems used for early detection and communication of disasters; transportation systems; stores and warehouses to preserve relief items such as mattresses, medical items, food; fire fighters and evacuation equipments such as helicopters,

ambulances, etc; generators to provide an interim source of energy and trained human resource. Very strategic supply chain principles need to be employed in managing all the resources in order to ensure effective response and recovery system aimed at reducing the potential occurrence of disasters and their associated impact should they occur. This requires effective administration; prioritization and scheduling; communication; inventory management, transport and distribution; and effective strategy, leadership, and effective tools and technology in order to ensure a successful disaster management.

#### **Co-ordination of Stakeholders:-**

According to the Ministry of Civil Defense and Emergency Management (MCDEM) of New Zealand, disaster management participants such as people who provide emergency services, welfare agencies, lifeline utility providers, researchers, volunteer groups, community groups and all other key stakeholders to disaster management must well coordinate individuals at regional, local and agency levels (MCDEM, 2005).

Optimizing the logistic performance in the management of disaster, effective relationships among the actors/ stakeholders involved need to be strategically managed through an integrated approach to efficiently and effectively coordinate inter-organizational performance, eliminate waste, and maximize efficiency along the entire emergency supply chain. Disaster management requires several stakeholders including donors, logistics companies, security organizations, the media, volunteers, etc. It is therefore very important to provide a good strategy and leadership to plan, prioritize, schedule, select, train, co-ordinate actors and adopt effective tools and technologies that will enable an effective and efficient disaster management operation.

#### **Systems, Tools and Technology used in Disaster Preparation, Response and Recovery:-**

According to Britton and Clark (1999a), certain tools and technologies are designed to modernize the disaster management approach, and in particular to improve the capability of the emergency services to deal with risk more effectively in order to promote community continuity and resilience by institutionalizing risk management practices and processes.

Early detection of disaster is key to reduce its impact. There is therefore the need to identify and install relevant disaster detection equipment at vantage places such as: in earthquake prone areas, flood prone areas and in structures especially high rise buildings. Water detection equipments; fire detection equipments such as ionization detectors, smoke detectors, flame detectors, thermal detectors; Fire suppression systems such as standpipe system, portable fire extinguishers, etc. are key in early detection and management of disasters. Other equipments needed may include effective communication gadgets such as broadcasting systems (radio sets, television sets), telecommunication systems (telephone, fax, VoIP, cellular mobile) and Interpersonal communication systems such as: door-to-door intercommunication systems, and residential route-warning systems; protective clothing for actors; logistics equipment such as airplanes and ambulances for quick evacuation of disaster victims and distribution of humanitarian logistics items such as: mattresses, clothing and blankets, medication, sanitary items, food; fire tenders; etc. These systems help to reduce the impact of disasters to lives and property.

#### **Disaster Management Strategies:-**

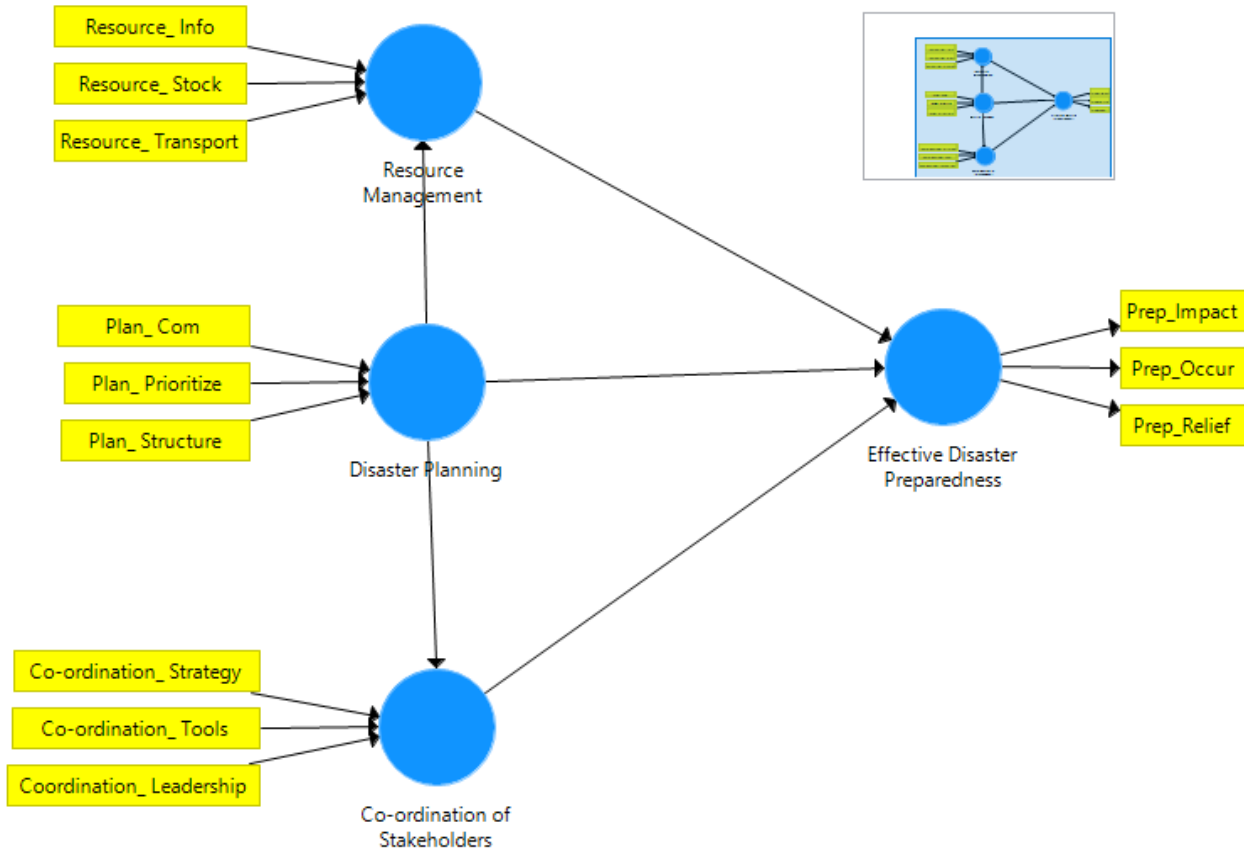
Enacting strict laws and sanctions to non-compliance of environmental standards by individuals, communities, organizations and all whose actions or inactions may lead to the occurrence of disaster is key to prevent disasters.

When disaster strikes, it is important to follow established emergency procedures for raising the alarm and evacuating personnel and making the disaster site safe. There is the need to implement an incident management system that enables all agencies, organizations and individuals to work in a coordinated manner during disaster operations (Queensland Disaster Management Strategic Policy Framework (QDMSPF), 2010). There is also the need to develop and implement an effective communication strategy that provides information and enhances public warning of disasters. Where possible, it is important to make a preliminary assessment of the extent of damage, and the equipment, supplies and services required. Photographs of damaged materials may also be captured for insurance claim purposes. It is advisable that salvage personnel remain on site until disaster sites stabilize, this is aimed at avoiding any incidence of resurface and possible escalation of a disaster. The creation of exit routs and the establishment of evacuation centres is also crucial to ensure an effective prevention, response or relief system.

### Common Challenges in Planning, Preparing and Responding to Disasters:-

An effective disaster prevention, preparation, response and relief is costly and inadequate funds, resources, technology and technical know-how cripple disaster management organizations' effectiveness. Lack of political will to place disaster management as a high government priority can have a significant negative effect on the effectiveness of disaster management. Apart from adequate security needed to control crowd and theft, demand for relief supplies varies in terms of magnitude, criticality, type of required materials and the level of predictability of disasters. This makes it difficult for responsible agencies to well budget and manage resources (Kovács&Spens, 2007) and predict the lead time in obtaining rapid response and relief items (Balcik et al., 2010).

### Conceptual model:-



**Fig. I:-** Conceptual and measurement model

There are two types of measurement scales used in structural equation modeling; reflective and formative. The measurement model used three formative indicators for measuring disaster planning: Structures and Administration, Prioritization and Scheduling and Communication of plans; three formative indicators to measure resource management: Information processing, stock/ inventory control and transport; three formative indicators to measure co-ordination of stakeholders: Leadership role, strategy and tools/ technology and finally, three reflective indicators to measure the effectiveness of disaster preparedness: Reduced potential occurrence, reduced impact and quick relief to victims.

### Research methods:-

The study seeks to establish the relationship between disaster management strategies and their effects on disaster preparedness. The population for this research comprises management and staff of selected media; NADMO, Ghana National Fire service, Ghana Police Service, Ghana Ambulance Service and Members of the public. A convenient sample size of 92 was used for the purpose of the study. The data collection instrument was a specially designed two-part questionnaire. The first part required respondents to provide information about themselves whilst the other sought the views of respondents on the effects of effective disaster planning, resource management and co-

ordination of stakeholders on the effectiveness of disaster preparedness. Respondents were asked to report on their experiences on these variables on a ten- point likert scale, where 1, 2, 3, 4 to 10 represented lowest to highest relationships.

The study also used multiple cases with the aim to obtain information from all key stakeholders who can promote an effective disaster management. Organizations and individuals were purposively sampled based on the researchers ability to obtain adequate information and for reason of closeness to the researcher. The choice of a multiple method was imperative as it provides better opportunities to answer research questions and to evaluate research findings to make inferences and also helps to lessen the time taken in conducting the survey although there is a potential for the responses to be bias (Tashakkori and Teddlie, 2003, as in Saunders et al. 2009). Self-administered questionnaire was the major tool used to obtain both qualitative and quantitative data from respondents. The questionnaire had a very simple structure to enable the researcher cover all research questions and enabled respondents to answer questions easily and within the shortest possible time. Completed questionnaires were checked and it was found out that there was no pattern of ratings, and respondents had rated on different methods. The main method of distribution of questionnaires were by hand, thus the researchers engaged trained individuals to distribute and collect them.

#### Data Analysis:-

To well analyze our conceptual model, a structural equation modeling (SEM) was adapted. SEM combines both econometric and psychometric perspectives in statistical modeling and attempts to estimate simultaneous relationships among observable predictor and predicted constructs. We adopted the partial least square method since the research aims at establishing a relationship between disaster management strategies and their effects on disaster preparedness. Data was analyzed with SmartPLS (Ringle, et al., 2005).

#### Results and Discussion:-

Out of the 92 questionnaires administered, 89 completed sets were received giving a response rate of 96.7%.

**Table I:-**Demographic characteristics of respondents (N=89)

Description	f	%	Description	f	%
<b>Gender:</b>			<b>Qualification:</b>		
Male	49	55.1	Masters	3	3.4
Female	40	44.9	Degree	35	39.3
<b>Age:</b>			Diploma	22	24.7
Below 24	20	22.5	S.H.S	29	32.6
25- 34	43	48.3	J.H.S/ No formal Education	0	0
35- 44	19	21.3	<b>Working Experience with organization:</b>		
Above 44	7	7.9	Below 5 years	24	27.0
<b>Place of Work:</b>			5- 10 years	35	39.3
NADMO	10	11.2	10- 15 years	17	19.1
Ghana Police Service	20	22.5	15-20 years	13	14.6
Ghana National Fire Service	25	28.1	Above 20 years	0	0
Media	13	14.6			
Ghana Ambulance Service	11	12.4			
Public	10	11.2			

Source: Authors' field survey, 2017

#### Measurement of Conceptual Model:-

The outer loadings, composite reliability and convergent validity were used by determining the average variance extracted (AVE) to assess these indicators. An indicator reliability determines which part of an indicator's variance can be explained by the constructs and loadings of indicators on the constructs of more than 0.7 is preferred whilst 0.4 or above is considered acceptable (Götz et al., 2010; Hulland, 1999). The loadings of all these reflective indicators of effective disaster preparedness exceed this standard (0.71, 0.55 and 0.87) for reduced impact (Prep\_Impact), reduced potential occurrence (Prep\_Occur) and Quick relief to victims (Prep\_Relief ) respectively.

Traditionally, "Cronbach's alpha" is used to measure internal consistency reliability in social science research but it turns to provide a conservative measurement in PLS-SEM. Prior Literature have suggested the use of "Composite reliability" as a replacement (Bagozzi and Yi, 1988 and Hair et al., 2012). A composite reliability is used to assess

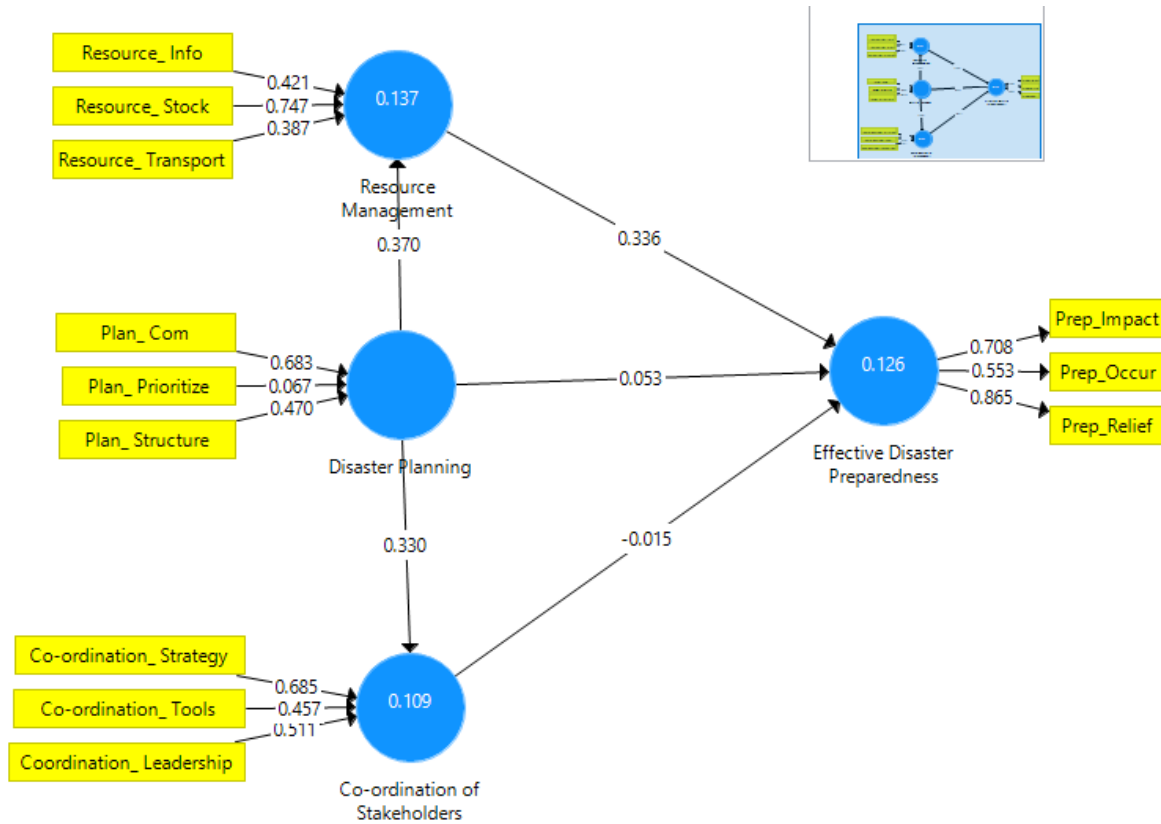
how well a construct is measured by its indicators, and values of more than 0.7 are considered reliable (Fornell and Larcker, 1981). A composite reliability of 0.76 for effective disaster preparedness is satisfactory.

Another criterion for assessing reflective measurement models is convergent validity by determining the average variance extracted (AVE), the average variance shared between a construct and its indicators is considered sufficient if the value is more than 0.50 (Chin, 1998; Götz et al., 2010), which is the case for effective disaster management construct with an AVE of 0.52.

The measurement model also includes formative indicators for measuring the relevance of disaster planning, resource management and co-ordination of stakeholders. Formative indicators are primarily evaluated on the basis of their weights (Hair et al. 2012). The estimation of this validity is performed by the Partial Least Square (PLS) approach with a bootstrapping method to calculate item weights (or PLS scores or outer weights) of each formative indicator to determine their degree of significance (Bruhn et al., 2008, Diamantopoulos and Winklhofer, 2001, Chin, 1998). However, Petter, Straub et al. (2007) suggests that indicators with insignificant weight may be eliminated (Diamantopoulos and Winklhofer, 2001), or remain insignificant indicators to preserve content validity (Bollen and Lennox, 1991), since the elimination of formative indicators carries the risk of changing the theoretical perspective of the constructs (Nunnally and Bernstein, 1994). Outer weights therefore vary from -1 to +1. Weights closest to absolute 1 reflect the strongest paths whilst weights closest to 0 reflect the weakest paths.

From Figure 2, all the weight of the formative indicators for the resource management construct are positive but that of stock management (Resource\_ Stock) is identified as having the most significant effect followed by information management (Resource\_ Info) and transport management (Resource\_ transport) with weights of 0.75, 0.42 and 0.39 respectively. Again with respect to Disaster Planning Construct, communication of plans (Plan\_ Com) is observed to have the highest weight followed by disaster management organizational structure (Plan\_ Structure) and prioritization of disaster management plan (Plan\_ Prioritize) with weights of 0.68, 0.47 and 0.07 respectively. With respect to the Co-ordination of stakeholders construct, all indicators show a positive relationship although that of strategy (Co-ordination\_ Strategy) is observed as having the highest effect followed by leadership (Co-ordination\_ Leadership) and tools (Co-ordination\_ Tools) with 0.69, 0.51 and 0.46 weights respectively.

The weights of all the reflective indicators of the effective disaster preparedness construct show a significant effect of 0.87, 0.71 and 0.55 respectively for enhanced relief to victims (Prep\_ Relief), reduced impact (Prep\_ Impact) and reduced potential occurrence (Prep\_ Occur) respectively.



**Fig. 2:-** Results of the model's analysis

Authors' field survey, 2017

In the case of resource management construct, respondents stressed the need for effective stock control of goods and materials needed to prevent or combat disaster. They explained that several categories of goods, materials, tools, technologies and relief items are needed to prevent and combat disasters and without them even with effective transportation system effective disaster preparedness cannot be ensured. Respondents also indicated the need to effectively disseminate disaster information to key stakeholders and the entire citizenry promptly, and with great care in order not to cause extreme fear and panic and divert disaster resources whilst managing potential disasters or their impact.

With respect to the disaster planning construct, prioritization of disaster strategies is considered to be of the lowest effect. Some respondents also indicated that prioritization becomes quite unrealistic since most disasters occur suddenly, they however explained that amidst diverse disasters which may occur at the same time, prioritization will only be based on the easiness to manage the type of disaster and the weight of risk of delay in managing that disaster (impact).

The central criterion for the assessment of the structural model is the coefficient of determination  $R^2$ , which is used to characterize the ability of the model to explain and predict the dependent variables (Ringle et al., 2012). In marketing research,  $R^2$  of values 0.75 is considered substantial, 0.50 as moderate and 0.25 as weak. An  $R^2$  of 0.126 for effective disaster preparedness as a dependent variable in our research is not satisfactory. Thus only 12.6% of the variance can be explained by disaster planning, resource management and co-ordination of stakeholders constructs.

According to Hair et al. (2013), when path coefficient between latent variables is 0.80 or higher, convergent validity is established. According to Lackey E. Sullivan(2003,p.60), for path coefficients with values between 0.00 to 0.29, 0.30 to 0.49, 0.50 to 0.69 and 0.70 to 0.89 are considered weak, low, moderate and strong respectively. However, Cohen (1988) indicates that values around 0.1, 0.30 and 0.50 are considered as having a small, medium and large effect respectively. Also using a two-tailed t-test, with a confidence interval of 5%, the path coefficient will be significant if the t-statistics is larger than 1.96. With the exception of the Co-ordination of stakeholders construct

which has a path coefficient of -0.015 to effective disaster management, the resource management and disaster planning constructs have a positive effect on the effectiveness of disaster preparedness with path coefficient values of 0.336 and 0.053 respectively. However, the relationship between the resource management construct and effective disaster preparedness is significant with t- values of 2.004 and p- value of 0.046, and that of disaster planning to effective disaster preparedness can be considered as weak with t- value of 0.244 and p- value of 0.81. Disaster planning has a significant effect on resource management constructs with path coefficient of 0.37, t- value of 2.023 and p- value of 0.044, and that of the relationship between Disaster planning and co-ordination of stakeholders can also be considered as significant with path coefficient of 0.33, t- value of 2.32 and p- value of 0.021.

Respondents indicated that Co-ordination of stakeholders has no positive effect on effective disaster preparedness when considered as an isolated construct because, if the necessary resources are not provided, stakeholders of disaster management may be more de-motivated/ frustrated to work as they become more exposed to risks and possibly worsen the impact of disaster.

Again, respondents indicated that disaster planning alone has no significant effect on effective disaster preparedness since ineffective implementation of plans resulting from ineffective resource management and co- ordination of stakeholders may render the objectives of effective disaster management unachievable.

### Conclusion:-

This study sought to investigate the roles of disaster management strategies on effective disaster preparedness. Whilst the data for the research were collected from stakeholders in Ghana, the findings may be used to generalize that of other nations who intend establishing robust disaster preparedness strategies.

The study reveals that disaster planning (effective disaster management structure, prioritization of disaster strategies and effective communication) and resource management (effective information dissemination, stock control and effective transportation) have a direct effect on effective disaster preparedness with resource management identified as having the most significant effect. However, co-ordination of stakeholders as an isolated construct has no positive relationship on disaster preparedness unless all necessary resources and logistics are provided. The study also reveals that disaster planning has a significant effect on resource management and the co-ordination of stakeholders. The conclusion of the study is that, in order to reduce the potential of disasters, reduce the impact of disasters and enhance relief to victims of disaster, strategic plans need to be established and adequate resources, materials, tools, relief items, etc need to be well managed. This is in line with Tomasini&Wassenhove (2009) assertion.

This research is limited to the Ghanaian context and the perspective of National Disaster Management Organization (NADMO), Ghana National Fire service, Ghana Police Service, Ghana Ambulance Service and members of the public. Future studies seeks to focus on assessing the level of preparedness in Ghana.

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